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Determinants of foreign direct investment in developing countries: 1990 - 2017

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Abstract

This paper considers two important questions about FDI determinants: 1) what were the most important determinants that attracted FDI to developing countries in the top 20 FDI host countries between the years over the past three decades and 2) to evaluate whether FDI is more attracted to investment incentives or to the country’s economic environment. Using a panel data with fixed effects model, we conclude that a country’s economic environment is more important for FDI and that tax and tariff incentives are not significant factors for foreign investors when we control for macroeconomic variables.

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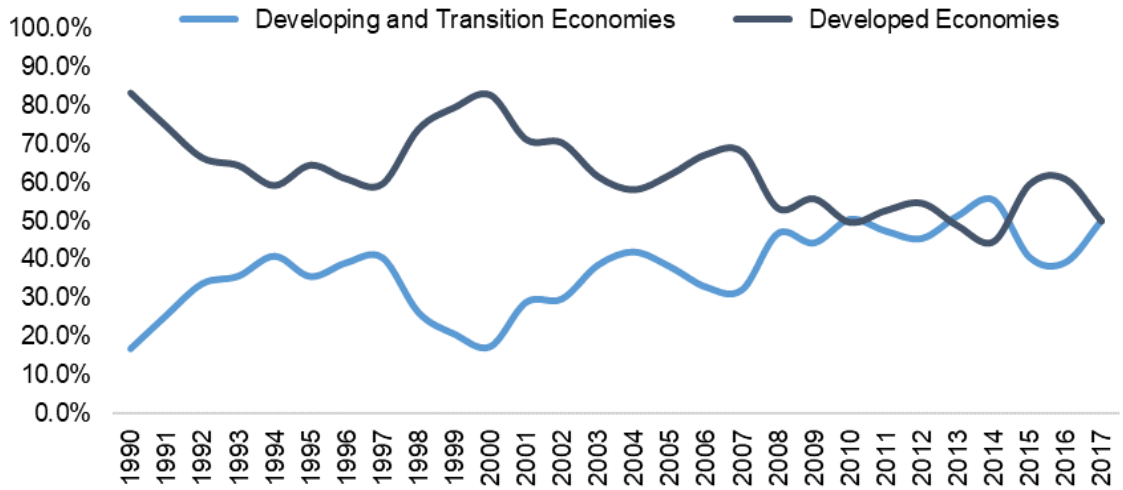
I. Introduction

The past three decades have witnessed a significant increase in Foreign Direction Investment (FDI) to developing countries, vis-à-vis developed countries, which had the lead in the 1990s. According to UNCTAD, developing and transition economies currently account for 50% of world FDI inflows, balancing the share of developed economies as shown in Figure 1 below. Most of world FDI is initiated from developed countries, who seek high profit rates in developing host markets, low-cost labor abundance or new markets for their products. Developing countries, on the other hand, have low domestic saving rates and are set to benefit from increased employment, technological know-how and productivity spillovers from developed countries, since FDI is long-term in nature and utilizes a large share of its inputs from domestic factors of production.

Figure 1: FDI Inflows by Group of Economies, % of World Total, 1990-2017



Source: UNCTAD, FDI database

Given the importance of FDI to developing countries, a very important question arises: Why does FDI go where it goes? There are two popular perspectives in this regard, where the first states that FDI is attracted to factor endowments and flows to countries with natural resources, cheap labor and large markets. The second suggests that countries that adopt more favorable investment policies and offer attractive investment incentives are more likely to draw FDI inflows.

Due to the mixed evidence from the literature regarding the location decision of foreign investors, we decided to take a new approach and focus on the top FDI-attracting developing countries over the past 27 years. We ranked developing countries with the highest average FDI between 1990 and 2017 and through a panel data model, we answer whether these countries focused on investment policies or rather on making their macroeconomic environment more attractive to foreign investors. These 20 countries alone account for 88% of total FDI inflows to developing countries over the past 27 years.

The motivation of this study is to answer two important questions: 1) What are the most important factors that affect investors' decision to invest FDI in a certain host country and 2) Do government investment policies (tax, customs, investment laws, lowering corruption, political stability …etc.) matter to foreign investors or are they attracted to larger host markets mainly and incentives serve as the cherry on the cake?

By determining the most common factors that attracted FDI in these host countries, other developing countries can follow the steps of their peers to increase their respective shares of FDI as well.

We test the common hypothesis in the literature that FDI is attracted by government investment policies, including investment incentives, in developing countries and compare the effect of government policy determinants vis-à-vis the economic environment determinants.

The remainder of the paper will be organized as follows. Chapter II reviews the literature on the determinants of FDI, with a special focus on research on developing countries. Chapter III describes the data and the definitions of the explanatory variables. Chapter IV presents and discusses the empirical results of the model. Finally, Chapter V concludes.

II. Literature Review

There is an abundant body of studies examining the determinants of FDI. Most of these empirical studies use country level cross sectional or panel data models to test the effect of certain variables that may potentially have an effect on FDI according to economic theory. Additionally, other studies use firm-level data or survey data to get more micro-level results for a cetrian host country.

These variables include investment policies and incentives such as tax rates, tariff rates, quality of infrastructure; and macroeconomic variables such as GDP, trade openness and natural resources abundance.

Thus the first step in understanding how countries attract FDI is to review the available literature on the different variables and their effect on FDI. Most of the research papers focus on the developed countries which have the highest FDI inflows. Developed countries differ a lot from developing countries in FDI determinants. Therefore, we will focus mainly on developing countries in our review of the literature, which is our main interest in this research study. Below is a summary of the main findings in the seminal literature.

This section will be divided into two parts, the first will focus on the literature on government investment policy indicators and the second part will review the economic environment indicators.

II.A Government Investment Policies

A large number of governments implement investment incentives to try to attract FDI to its economy and promote its investment policies, competing with other countries with investment reforms. Incentives include lower tax rates, tax

holidays, lower tariff rates, new investment laws that favour foreign investors, free zone areas, developing reliable infrastructure for investment, lower lending interest rates, lowering corruption incidence, among others. These incentives have become a first defence line by governments to appeal to foreign investors.

However, these incentives come at a cost, and in many countries have a marginal effect on increasing FDI flows to the host country for other macroeconomic reasons for example. Most of the empirical literature in the coming section supports the notion that incentives do not have a major impact, particularly if these host countries have other major problems on the political or economic sides and incentives cannot compensate for them alone.

II.A.1 Tax Rate

The effect of taxes on investment decision is a much-studied phenomenon in economics. However, the literature on taxes and FDI is in debate about the direction and magnitude of this relationship. Most of these papers point out that the effect of taxes on FDI can vary substantially by type of taxes, measurement of FDI activity, and tax treatment in the host and parent countries. Another important issue is that most multinational companies face a double taxation issue between the host and the home countries. Most countries have different ways of addressing this double taxation issue, which further complicates the study of the effects of taxes on FDI.

Rationally, it is believed that higher taxes discourage investment decisions. Most of these studies are based on a cross section of host countries with varying tax rates. Hartman (1984, 1985) was the first to point out a way in

which certain types of FDI may surprisingly not be very sensitive to taxes. Hartman tested mainly the relation between FDI as a ratio of GNP and domestic tax policy in the United States of America (USA) between 1965 and 1979. Hartman differentiated between two types of FDI, one that is financed from retained earnings to expand current operations and one that is financed by transferring of funds from abroad. He found that the former responded more to the host country tax rate, whereas transfer FDI did not respond meaningfully to host country tax rate. The key insight by Hartman is that earnings by an affiliate in foreign country will ultimately be subject to parent and host country taxes regardless of whether it is repatriated or reinvested in the foreign affiliate to generate further earnings.

Similarly, Grubert and Mutti (1991), Hines and Rice (1994), Loree and Guisinger (1995), Kemsley (1998) and Billington (1999) all find a significant negative relation. More recently, Hasset and Hubbard (2002) found a negative relation with an elasticity between -0.5 - -1.0 using microeconomic data. De Mooji and Ederveen (2003) studied the impact of company taxes on the company's FDI decision by calculating the elasticity of FDIs to tax rates through a meta-analysis of 25 empirical studies. They found that the elasticity stands at -3.3. Desai, Foley and Hines (2004b) focused on indirect taxes other than income taxes and their effect on FDI by US multinational corporations and found that it has a very significant effect on after tax return of these firms and thus their investment decisions.

Goodspeed, Martinez-Vazquez and Zhang (2006) found that lower taxes attract FDIs with an elasticity of -0.67 for 53 developing and developed countries between 1984 and 2002. Klemm and Van Parys (2009) test the efficacy of tax incentives by looking not only at tax rates, but also at tax holidays in 40 Latin American and African countries between 1985 and 2004. They found that tax incentives affect FDI in lower-income countries. Grubert (2012) used a different approach, by looking at the tax differential between foreign and domestic tax rates and FDI decision; he found that a change in a company's effective foreign tax rate has a large and statistically significant impact on its FDI decision with elasticity of -0.436. Barrios et al. (2012) used panel data from 33 European countries between the years 1999 to 2003 to examine the separate effects of host and additional parent country taxation on the location decisions of multinational firms. They found that both types of taxation have a negative impact on the location of new foreign subsidiaries with an elasticity of -0.87.

On the other hand, Wheeler and Mody (1992) found an insignificant effect of taxes on FDI for countries with good infrastructure and expanding domestic market.

II.A.2 Tariff Rate

Over the past three decades at least, developing countries have made massive progression in opening up their domestic markets to international trade and lowering their tariff rates. A number of countries have also worked on their non-tariff barriers, in an attempt to attract FDI that is focused on exporting to nearby countries. In a study on impact of tariff structure on FDI in Pakistan

between 1973 and 2011, Pervez and Malik (2013) conclude that lower tariffs attract FDI and that countries should use them as an incentive to promote FDI.

Similarly, Du, Harrison and Jefferson (2014) found that tariff reductions in China increased FDI and enhanced productivity spillovers between 1998 and 2007 using a firm-level dataset of manufacturing companies in China. Banga (2003) also found that lower tariffs attract FDI in a panel study on 15 developing countries in Asia for the period 1980 to 2000.

On the other hand, there is an opposite argument in favour of high protection, arguing that higher tariffs encourage foreign investment in the high tariff-levying country by increasing the cost to export. Thus FDI in this case may seek to operate locally in countries with higher tariff rates to mitigate the effect of exporting their products to these high protection countries. This “tariff-jumping FDI” has become an important incentive of inward FDI to many high-protection host countries with large market sizes, where FDI is attracted to higher tariff rate countries, and not the opposite. Belderbos (1997) investigated the effect of high tariff rates on FDI and found that higher protection measures have led to substantially higher investments in the manufacturing sectors in these countries. Similarly, Blonigen et al. (2002) found a similar positive response from FDI to high tariffs in the USA in the period of 1980-1990.

II.A.3 Quality of Infrastructure

Good infrastructure is essential for investment, and many countries invest heavily in its infrastructure development to attract new investment, especially FDI. Investors prefer a well-developed infrastructure that includes roads, ports

airports as well as technology and electricity to be able to operate their investments. In their study on manufacturing investment decisions by US multination firms in a panel of 42 countries for the period 1982-1988, Wheeler and Mody (1992) found that quality of infrastructure is a significant determinant of FDI using Business International's (BI) country score for infrastructure quality, which measures the quality of transport, communications and energy infrastructure. Kumar (1994) and Loree and Guisinger (1995) also found a positive effect of infrastructure on FDI.

Asiedu (2002) and Demirhan and Masca (2008) used the number of telephone lines as their variable for infrastructure and found it to be positively related and significant in their models on Sub-Saharan African countries and developing counties, respectively. Addison and Heshmati (2003) found that information and communication technology (ICT) increase FDI inflows to developing countries. Nunes and Peschiera (2006) used public expenditure on capital to acquire fixed capital assets, land, non-tangible assets, and non-financial non-military assets as an indicator for infrastructure quality and it had a positive impact on FDI on their model.

Campos and Kinoshita (2008) also used the number of telephone lines per 1,000 people as a proxy for infrastructure development in their study on 25 transition economies, but the variable was not significant. Onyeiwu and Shrestha (2004) and Morriset (2000) used the same indicator as well in their panel dataset models and it was also not significant, which the latter asserted to the fact that it does not reflect the quality and costs of the telecommunication.

Finally, Khadaroo and Seetanah (2009) analyzed the role of transport infrastructure availability in attracting FDI, by using the length of paved roads per square kilometer of area, in 33 African economies between 1984 and 2002 and found it to be an important factor for FDI.

II.A.4 Corruption

Corruption can be a routine hurdle for investors especially in developing countries. Despite a considerable number of theoretical and empirical studies, there is still no agreement on the direction of the impact of corruption on firms' investment decisions. Empirical analyses have not yet consistently confirmed the negative relationship between corruption and FDI.

There are two lines of thought in the literature regarding the effect of corruption on FDI, the "grabbing hand" corruption theory and the "helping hand" corruption theory. The former states that there is a negative impact of corruption on FDI due to the high costs of corruption, whereas the latter suggests a positive effect as it facilitates bureaucratic and administrative approvals and speed up investment timeline.

Kaufmann (1997) found that the costs of investing in a more corrupt host country were shown to be as much as 20% higher than those of a less corrupt one. Wei (2000) studied the effect of corruption on FDI flows in the early 1990s from 14 developed countries to 45 host countries and found a significant and negative effect on FDI. He used 3 different indicators for corruption, the Business International (BI) corruption measure, the International Country Risk Group

(ICRG) Corruption indicator and the Corruption Perception Index published by Transparency International (TI).

Drabek and Payne (2001), tested if transparency had an effect on FDI by creating a composite transparency index compiled from the ICRG rankings in five areas: corruption, law and order, bureaucratic quality, contract viability and the risk of government expropriation of private assets. Their results indicated that FDI is negatively impacted by high levels of non-transparency.

Egger and Winner (2006) also find a negative relation between FDI and corruption, but it is relevant only for FDI to non-OECD countries, and that the effect of corruption has declined over the past decade, and that other macroeconomic factors have become more important determinants of FDI. Habib and Zurawicki (2002), Javorcik and Wei (2009), Busse and Hefeker (2007) and Hakkala et al. (2008) all found similar results for both developed and developing countries.

On the other hand, Wheeler and Mody (1992), Bjorvatn and Soreide (2005) and Saha (2000) find that corruption in the host country will not necessarily discourage FDI from foreign firms.

More recently, Barassi and Zhou (2014) analysed the effect of corruption on multinational enterprises' decision to invest in 52 developing and developed host countries using a parametric and a non-parametric model between 1996 and 2003 based on Transparency International's Corruption Perception Index. They found that corruption has a significant negative effect on FDI decisions by firms in both models. Interestingly, their parametric study also found that a higher

level of corruption would deter FDI from taking place, however once a country is selected as the host country for other determinants, a higher level of corruption would not deter FDI.

We can conclude from the review of the literature on government investment policies is that most research reviewed found a significant negative relation between FDI and tax rates, even when different types of tax incentives were used. However, the results on the tariff rates were inconclusive, where some papers found evidence of negative effect of high protection whereas other papers found evidence of the “tariff-jumping” FDI theory.

The quality of infrastructure, usually using the number of telephone lines per 1,00 people, due to lack of data on infrastructure bases of countries, found a positive relation to FDI inflows, with the exception of a few papers which found no significant effect. The authors stated that the insignificant effect could be due to the fact that number of telephone lines does not give any evidence on the quality of infrastructure.

Finally, the reviewed mostly papers found a negative relation between FDI and corruption, which confirms that high corruption increases the cost of investment and rips investors of equal opportunities. However, a number of models found that the helping-hand theory of corruption is applicable in some developing countries, as discussed in the review above. The reviewed literature on government investment policies is summarized in table 1 below.

Table 1: Summary of Government Investment Policies on FDI in the Literature

	Effect on FDI in Different Papers		
Variable	**Positive**	**Negative**	**Insignificant**
Tax Rate		Grubert and Mutti (1991) Hines and Rice (1994) Loree and Guisinger (1995) Kemsley (1998) Billington (1999) Hasset and Hubbard (2002) De Mooji and Ederveen (2003) Foley and Hines (2004b) Goodspeed et al. (2006) Klemm and Van Parys (2009) Barrios et al. (2012)	Wheeler and Mody (1992)
Tariff Rate	Belderbos (1997) Blonigen et al. (2002)	Pervez and Malik (2013) Du, Harrison and Jefferson (2014) Banga (2003)	
Quality of Infrastructure	Wheeler and Mody (1992) Kumar (1994) Loree and Guisinger (1995) Asiedu (2002) Demirhan and Masca (2008) Addison and Heshmati (2003) Nunes and Peschiera (2006) Khadaroo and Seetanah (2009)		Campos and Kinoshita (2008) Onyeiwu and Shrestha (2004) Morriset (2000)
Corruption		Kaufmann (1997) Wei (2000) Drabek and Payne (2001) Egger and Winner (2006) Habib and Zurawicki (2002) Javorcik and Wei (2009) Busse and Hefeker (2007) Hakkala et al. (2008) Barassi and Zhou (2014)	Wheeler and Mody (1992) Bjorvatn and Soreide (2005) Saha (2000)

B. Economic Environment

Within the economic environment of host markets, the accepted hypothesis is that FDI is mainly attracted to large markets with high growth and natural resources as well as abundant labor. However, market size appears to be the most important robust and positive determinant of FDI within this category, as we will see in the following review.

II.B.1 Host Market Size and Growth

Market size and market growth are considered as the most important determinants of FDI. Almost every study on FDI in developing countries has found a positive relationship between economic growth and FDI. Larger markets and population size in host countries present a higher demand potential and thus attracts FDI for companies seeking horizontally or open new export markets. The most significant and extensively referenced study that links market size to FDI was by Dunning (1993), who was the first to classify FDI intro three types; market-seeking, which aims to open new markets for its products, 2) resource-seeking, which aims to make-use of natural resources not easily or cheaply accessible in home market and 3) efficiency-seeking, which aims to lower cost of production by relocating to lower-cost markets to achieve economies of scale.

Wheeler and Moody (1992) and Billington (1999) also found a positive relation between the two. More recently, Chakrabarti (2001) used GDP per capita as a proxy for a host country's market size and found that it is the most important factor in attracting FDI by using an Extreme Bound Analysis (EBA) on 135 countries in 1994. Addison and Heshmati (2003) found GDP growth to be

positive and significant in their model on the importance of ICT and democratization in developing countries between 1970 and 1990. Similarly, in a panel data model on determinants of FDI in 29 developing countries between 1975 and 1999, Onyeiwu and Shrestha (2004) used the same variable and found it to have a significant effect in both of their modes, the fixed effect and the random effect models.

Artige and Nicolini (2005) state that market size as measured by GDP or GDP per capita is the most robust FDI determinant. Demirhan and Masca (2008) utilized the growth of per capita real GDP to control for market size and not GDP in absolute terms that may only reflect population growth and found it has an effect on FDI attraction.

II.B.2 Labor Supply and Cost

The availability of low-cost skilled labor is a very important for factor for investment in developing countries. However, potential foreign investors should also consider labor quality, as developing countries may have an abundance of cheap unskilled labor, but this requires a lot of additional costs to train and educate. Banga (2003) finds that the cost of labor estimated using real wages as well as high skilled-labor, estimated by higher secondary enrollment rate and labor productivity, are important factors in attracting FDI to developing countries in his model of 15 developing countries between the years 1980 and 2000.

On the other hand, in their study on ASEAN countries over the period 1991 – 2009, Hoang and Bui (2015) found that low-cost labor does not attract FDI to the region, whereas labor productivity was significant, which is as

important to investors. Wahid et al. (2009) used nominal wage rate as a proxy for labor cost in their model on FDI determinants in 20 African countries found it to be a significant negative factor affecting FDI. Demirhan and Masca (2008) studied labor cost per worker in manufacturing industry and found it to be insignificant in affecting FDI decisions in their cross-section analysis on developing countries in the period studied.

II.B.3 Exchange Rate

One of the important macroeconomic variables in a country is the movement of its exchange rate. Exchange rate depreciation has a negative effect on the value of foreign assets invested in a country and on the profits to be repatriated to the mother company in home country. The link between exchange rate stability has been investigated in a number of studies in the literature, whereas some studies focused on the level of exchange rate versus the USD on FDI inflows.

The direction of the relationship depends on the whether the cost or the income effect is stronger. The cost effect is when depreciation has a negative effect on current account when the country is a net importer, whereas the income effect is the increase in competitiveness that follows exchange rate depreciation for export-oriented countries. The net effect depends on which effect is greater. Thus we find mixed results in the literature regarding exchange rates.

Blonigen (1997) used real exchange rate in his model on Japanese acquisitions in the USA to test the effect of exchange rate on foreign direct investment, and found that a weaker dollar attracted Japanese FDI. Kiyota and

Urata (2004) also found that the depreciation of the currency attracted FDI, whereas the volatility of exchange rates discouraged FDI inflows.

II.B.4 Inflation

Inflation rate is considered an indicator for macroeconomic stability of a country by investors. A low and stable inflation shows the commitment of the government, through its Central bank policies, to achieve a stable environment in which investors and consumers can make informed decisions and predict their future costs and profits with confidence. Furthermore, low inflation preserves the purchasing power of currencies and leads to lower interest rates in the economy. Thus countries with low stable inflation have been associated with high FDI inflows.

Onyeiwu and Shrestha (2004) found that inflation is a negative significant in both fixed and random effects models. Demirhan and Masca (2008) and Asiedu (2013) also found a negative significant effect of inflation of FDI. Addison and Heshmati (2003) used inflation rate and variance of inflation rate in their FDI model and both were either insignificant or weakly significant in their two models.

Busse and Hefeker (2007) used the GDP deflator as a proxy for macroeconomic stability and found no significant relationship between inflation and FDI. Asiedu (2002) and Campos and Kinoshita (2003) also found no significant relationship between inflation and FDI in their model.

II.B.5 Trade Openness

A country's openness to trade, measured in the literature commonly as the sum of imports and exports as a % of GDP, is a positive determinant of FDI in

most of the studies on FDI in developing countries. This is due to the perception that open economies encourage investors who target to export their production to nearby countries or to easily and cheaply import their required inputs from abroad. Another indicator of openness is the relative size of the export sector relative to the country's GDP as well as trade as a share of GDP.

Charkrabarti (2001) finds that openness to trade, measured by sum of imports and exports to GDP, is one of the most important factors in attracting FDI. Nunes and Peschiera (2006) also used the same indicator and it had a positive significant impact on attracting FDI. Addison and Heshmati (2003) also find that openness to trade has a positive impact on FDI flows. Asiedu (2002) also found openness to be an important factor for FDI attraction in her model on countries in Sub-Saharan Africa. Onyeiwu and Shrestha (2004) followed the same methodology and found that openness is a very important determinant of FDI flows to Africa.

II.B.6 Availability of Natural Resources

For Africa and the Gulf region specially, it is known that FDI is mainly driven by natural resources abundance, called resource- or asset-seeking FDI. This type of FDI seeks to invest abroad to acquire resources not available in the home country, such as natural resources, mainly oil and coal, and raw materials that would otherwise be expensive to import to home country.

In their panel model on 25 transition economies between 1990 and 1998, Campos and Kinoshita (2003) found that natural resources abundance has a significant and positive effect on FDI. Similarly, Onyeiwu and Shrestha (2004)

found that natural resource availability is a significant factor in FDI attraction in their study on FDI flows to Africa based on a panel dataset of 29 African countries over the period 1975 and 1999.

In contrast, Asiedu (2013) tested the significance of natural resources on attraction of FDI in 99 developing countries. She employed two different measures of natural resources, share of fuel of total merchandise exports and oil rent as a percent of GDP. She found that natural resources have a negative effect on FDI. This is consistent with the “FDI-natural resources curse”, where countries with abundant natural resources tend to grow slower than countries with scarce natural resources (Sachs & Warner, 2001).

Similarly, Poelhekke and Ploeg (2010) found that natural resources boost FDI in the resource sector but crowds out FDI in the non-resource sector, and that the total FDI is less in resource rich countries due to the dominating effect on the non-resource sector.

From the reviewed research on economic environment determinants, we find that the most robust factor is the host market size and growth, which has a significant positive relation in all papers reviewed. Following suit was the trade openness of host countries, measured customarily as sum of imports and exports as a % of GDP in most models, was the second most important factor for FDI.

Despite its importance for foreign investors in developing economies, eexchange rate stability was not very commonly used in the literature, were only a few papers included the exchange rate effect and found it to be negatively related to FDI inflows.

On the other hand, labor cost and inflation had mixed results, which were either negative or insignificant in the research reviewed. Natural resources rent was controversial, as some papers found a strong support for resource-seeking FDI theories, whereas others found evidence of the “natural resources curse” that is evident in some resource-rich developing countries. The results of the reviewed papers are summarized in table 2 below.

Table 2: Summary of Economic Environment on FDI in the Literature

	Effect on FDI in Different Papers		
Variable	**Positive**	**Negative**	**Insignificant**
Host Market size and growth	Wheeler and Moody (1992) Billington (1999) Chakrabarti (2001) Addison and Heshmati (2003) Onyeiwu and Shrestha (2004) Artige and Nicolini (2005) Demirhan and Masca (2008)		
Labor Cost		Banga (2003) Wahid et al. (2009)	Hoang and Bui (2015) Demirhan and Masca (2008)
Exchange Rate		Blonigen (1997) Kiyota and Urata (2004)	
Inflation		Onyeiwu and Shrestha (2004) Demirhan and Masca (2008) Asiedu (2013)	Addison and Heshmati (2003) Busse and Hefeker (2007) Asiedu (2002) Campos and Kinoshita (2003)
Trade Openness	Charkrabarti (2001) Nunes and Peschiera (2006) Addison and Heshmati (2003) Asiedu (2002) Onyeiwu and Shrestha (2004)		
Availability of Natural Resources	Campos and Kinoshita (2003) Onyeiwu and Shrestha (2004)	Asiedu (2013) Poelhekke and Ploeg (2010)	

II.C. Contribution of Study

After reviewing the extensive literature of FDI determinants, we find mixed results of studies on different regions and over different time horizons. This study contributes to the literature by concentrating on top 20 FDI-attracting developing countries to provide a more comprehensive list of common determinants among these countries that led to achieving the highest FDI inflows over the period 1990 to 2017 to test our research question of whether FDI is attracted to government investment policies or to macroeconomic environment of host countries.

We also test new variables in our model not commonly tested in the literature before; including access to credit, share of private consumption as well as the size of the services sector. We also use the labor force participation rate instead of the labor cost to test the significance of labor abundance, as will be shown in Chapter III hereafter. Finally, our research also aims to give policy implication insights to other developing countries to follow their peers to increase their share of FDI as well.

III. Data and Model Methodology

III.A Research Design

This study will be designed as a panel data model of the top 20 FDI-attracting developing countries between the years 1990 and 2017. The top 20 host developing countries were chosen on the basis of highest average FDI inflows in USD between the years 1990 and 2017, according to the World Bank FDI inflow data. We focus on the first 20 countries to allow diversification in regions but maintain some homogeneity between the countries included in the model to arrive at objective consistent results that can be applied to all other developing countries. Country FDI rankings are shown in table 1 in appendix.

To determine the factors that contributed to the highest inflows, the FDI as a % of GDP of these countries will be tested against a number of indicators to determine the most significant indicators through a panel data model over the research's time horizon.

III.B Variables Definition

The variables included in the model include government investment policy factors and economic environment factors. It is worth noting that the choice of some variables was constrained by data availability, as some variables are not available or have a lot of missing values for developing countries. For example, data on wages is not readily available for most developing countries, so it was excluded from our model, even though it is one of the important variables in the economic environment group. Also, the tax rate used in our model is the corporate tax rate, whereas it is better to utilize a broader measure like total tax

contribution for example, which was not available for most developing countries as well.

As is standard in the literature, the dependent variable in our model is net FDI inflows, which is measured as new investment inflows less disinvestment by foreign investors, as a share of GDP. Explanatory variables within the government investment policy group include tax rate, tariff rate, infrastructure development, corruption Index, government stability and interest rate. The economic environment group variables include real market growth, trade openness, access to credit, inflation, availability of natural resources, exchange rate stability, size of services sector, labor force and final consumption. Furthermore, the first lag of the dependent variable was used as an explanatory variable to account for the incremental nature of FDI and to correct for serial autocorrelation in the model. The summary of variable definitions are shown in table 2 in appendix and explained below.

III.B.1. Government Investment Policy Variables Description

a. Tax Rate

The statutory corporate tax rate, sourced from KPMG corporate tax rates database, was utilized to account for tax rates paid by corporates in host country. Higher tax rates are expected to reduce investors' profits and deter investments if too high, thus the effect is expected to be negative on FDI inflows.

b. Tariff Rate

The average of effective tariff rates on all traded products is used to account for trade protection. Normally, higher tariffs discourage export-seeking FDI, but in some case, as discussed in the literature review, sometimes FDI is tariff-jumping and goes to high tariff countries to have cheap access to these markets instead of exporting at the high tariff rates. Thus the sign of the relation can either be positive or negative depending on the type of FDI and the host country.

c. Infrastructure Development

To account for infrastructure development, the number of subscriptions to a mobile telephone service that provide access using cellular technology per 100 people was used as a proxy. The better the infrastructure of a country, the higher potential it has to attract FDI which prefers developed markets in terms of transportation and technology availability. Thus, the relationship is expected to be positive.

d. Access to Credit

Ease of access to banking credit is a major impediment in a number of developing markets, that are underbanked and access to credit by foreign investors is even more difficult and requires a large number of procedures and approvals, which makes a lot of foreign investors rely on credit from mother company or home country. Given the absence of data on credit to foreign investors, we use domestic credit to the private sector as a % of GDP as a proxy for access to credit in our model, and it is expected to have a positive impact on FDI.

e. Corruption

Corruption distorts market efficiency and accountability and leads to unequal opportunities for investors. However, it is a common phenomenon in developing countries in varying degrees, and is to be expected by foreign investors. We utilize here the International Country Risk Guide (ICRG), computed by the PRS Group, a measure of corruption within the political system, which is an index that varies from zero to six, with higher values indicating lower corruption.

III.B.2. Economic Environment Variables Description

a. Host Market Growth

High-growth economies are attractive to FDI that seeks to operate in large markets with high demand and fast-growing investments. Furthermore, economies that are growing quickly are known to implement sound economic

policies, which further enhance FDI attraction. We utilize annual GDP growth at market prices based on constant local currency. GDP growth is the single most robust significant variable in explaining variation in FDI, thus it is expected to have a positive sign.

b. Trade Openness

Almost all previous studies have found a positive relationship between openness of an economy and FDI. We follow the literature and use exports of goods and services as a share of GDP to account for the openness of the economy.

c. Inflation

Most developing economies experience high inflation rates, which is consistent with the high growth rates of these economies. However, high inflation rates hurdle decision making and makes planning very difficult for investors who cannot accurately forecast prices in the near future. Furthermore, it decreases the value of currency and thus the value of investments in these economies. Thus we expect that countries with high inflation rates to be less attractive to FDI. We use the first lag of annual inflation, measured as the change in the Consumer Price Index (CPI), in our model as we found evidence from diagnostic tests that inflation has a lagged effect.

d. Availability of Natural Resources

Resource-rich nations are usually a target for FDI, especially resource-seeking FDI as we discussed before, which take advantage of the abundant

resources of oil and natural gas mainly and usually flow to these sectors. We account for availability of natural through the total natural resources rent as a % of GDP, which includes oil, natural gas, coal and mineral rents. In our model, we expect availability of natural resources to be a positive factor in attracting FDI to developing countries.

e. Exchange Rate Stability

A constant change in exchange rates signals to investors policy instability and may lead to huge losses when repatriating their profits to mother company or home country in USD. Thus exchange rate stability is a very important factor for foreign investors. We account for stability as the annual change in the average exchange rate of the local currency versus the USD, and expect a negative relation between this change and FDI inflows.

f. Size of Services Sector

The share of services sector has been gaining momentum over other sectors in the economy, especially in developing countries. A lot of FDI has been diverted from the traditional manufacturing sector to the services sector, thus we incorporate the share of the services sector as a % of GDP in our model to capture this effect and expect a positive relation.

g. Labor Force

The availability and quality of labor force is very important for FDI, as most investments will have to rely on domestic labor, even if they bring a portion of their required labor from home country to ensure quality. We account for availability of labor through the labor force participation rate, which includes the

proportion of population ages 15 to 64 that is either working or actively seeking work.

h. Private Consumption

Private consumption is the main driver of GDP growth in developing countries and offers a large market for foreign investors to market their products due to the persistent gap between supply and demand in these markets. We include household final consumption expenditure as a % of GDP and expect it to have a positive impact on FDI in developing countries.

III.C Data Sources

The data were obtained from various sources. The main indicators are from the World Bank's World Development Indicators (WDI) database. The macroeconomic data were sourced from the IMF World Economic Outlook (WEO) and the International Financial Statistics (IFS) database, corruption indexes were sourced from the International Country Risk Guide (ICRG) researchers' database and from Transparency International (TI), whereas corporate tax rates were sourced from KPMG Corporate Tax Rate Database.

III.D Methodology

Having discussed the factors affecting FDI in developing markets and after defining our variables and the time horizon, we now estimate our model for FDI determinants. We follow the literature in modelling FDI determinants, where commonly a measure of FDI is regressed on a number of variables identified as determinants of FDI. In the baseline panel data model, FDI will be regressed on

two groups of variables, a set of government investment policies and a set of economic environment factors, as follows:

$$Y_{it} = \alpha + \lambda X_{it} + \varepsilon_{it} ,$$

$$\varepsilon_{it} = \eta_i + \gamma_t + U_{it}$$

where Y_{it} is the dependent variable which is measured as FDI as a share of GDP in country i at year t. X_{it} are the explanatory variables divided between (1) government investment policy factors (tax rate, tariff rate, infrastructure, access to credit and corruption) and 2) economic environment factors (GDP growth, private consumption, openness to trade, services as a share of GDP, natural resource abundance, inflation and exchange rate stability). η_i represents unobservable country-specific characteristics and γ_t represents time-specific effects. The model is estimated using E-views software, where the dataset is unbalanced due to some missing data points but all countries in the dataset are observed every period.

III.E Specification Tests

We started by inspecting the data for outliers for each variable within each country separately. The data had very few outliers within each country; however there are vast differences in the value of variable across countries, which will be taken into account by using the fixed effect model. The descriptive statistics of the variables are also reported in table 3 in appendix.

A pooled OLS model was then estimated as a starting step, which does not account for unobservable country or period-specific effects, shown in table 3

below. In our case, the pooled OLS is less appropriate as we need to account for these effects in our model due to the vast difference in sizes and economic characteristic of some countries.

Table 3: Pooled OLS Model Output

Variable	Coefficient
C	-14.812***
	(0.000)
FDI/GDP*100 (-1)	0.512***
	(0.000)
Corporate Tax Rate	-0.025
	(0.468)
Tariff Rate	0.035
	(0.319)
Mobile Cellular Sub	0.003
	(0.360)
Credit to Private Sector/GDP*100	0.002
	(0.660)
ICRG Corruption	0.267
	(0.233)
GDP Growth	0.206***
	(0.000)
HH Cons Expenditure/GDP*100	0.078***
	(0.000)
Exports of Goods and Services/GDP*100	0.041***
	(0.000)
Services/GDP*100	0.135***
	(0.000)
Natural Resources Rents	0.089***
	(0.000)
Labor Force Participation	0.017
	(0.412)
Inflation (-1)	-0.003
	(0.829)
Log Exchange Rate	0.021
	(0.754)
Adjusted R-squared	0.839
F-statistic	141.892
Prob (F-statistic)	0.000
Periods included	27
Cross-sections included	20
Total panel observations	379
Akaike info criterion	4.932

*P-values in parentheses, *** p<0.01, ** p<0.05, * p<0.1.*

To choose between the fixed and random effects specifications, the Hausman test was utilized to choose between the fixed effect model and random effect model. The null hypothesis of the Hausman test is that the preferred model is random effects whereas the alternate hypothesis is that the model is a fixed effects model. The test results shown in table 4 below show that the p-value is less than 0.01, thus we reject the null hypothesis and thus the fixed effect model should be used in this case. Hence, the pooled OLS is rejected in favour of a fixed-effects model incorporating country-specific effects.

Table 4: Correlated Random Effects - Hausman Test

Ho: The preferred model is random effects

Ha: The model is a fixed effects model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	36.394	14	0.0009

To correct for autocorrelation, the first lag of the dependent variable was added to the model and the results of the Durbin-Watson test now indicate no autocorrelation between the residuals, as shown in model output below.

The last step was to check for multicollinearity between the independent variables through the correlation matrix, which is reported in table 4 in appendix. The results do not show any significant correlation between variables above 0.6, with the exception of a slightly high correlation between exports of goods and services as a % of GDP and FDI as a % of GDP, which stood at 0.78 and is not alarming and can be ignored in our opinion.

IV. Empirical Results and Discussion

IV.A. Baseline Panel Data Results

Our baseline model estimation results show that mobile cellular subscriptions, real GDP growth, household consumption as a % of GDP, exports of goods and services as a % of GDP, natural resources rent as a % of GDP, services as a % of GDP and as well as the first lag of FDI as a share of GDP have a significant effect on FDI. As a group, these factors account for around 85% of the variation in FDI as a share of GDP, as shown in the following output table 5 below.

Table 5: Baseline Panel Data Model Output with Fixed Effects

Variable	Coefficient
C	-18.170***
	(0.032)
FDI/GDP*100 (-1)	0.357***
	(0.000)
Corporate Tax Rate	-0.021
	(0.668)
Tariff Rate	0.058
	(0.238)
Mobile Cellular Sub	0.018*
	(0.069)
Credit to Private Sector/GDP*100	0.017
	(0.160)
ICRG Corruption	-0.223
	(0.532)
GDP Growth	0.171***
	(0.004)
HH Cons Expenditure/GDP*100	0.125*
	(0.055)
Exports of Goods and Services/GDP*100	0.057***
	(0.001)
Services/GDP*100	0.142*
	(0.074)
Natural Resources Rents	0.186**
	(0.015)
Labor Force Participation	0.010
	(0.891)
Inflation (-1)	-0.017
	(0.379)
Log Exchange Rate	-0.205
	(0.704)
Adjusted R-squared	0.848
F-statistic	36.727
Prob (F-statistic)	0.000
Periods included	27
Cross-sections included	20
Total panel observations	379
Akaike info criterion	4.981

*P-values in parentheses, *** p<0.01, ** p<0.05, * p<0.1.*

In line with the main conclusion in the literature, we found a very strong significant positive effect of GDP growth on FDI inflows, implying that FDI is attracted to countries that are growing at a faster pace. The coefficient of GDP growth is 0.17, showing that an increase of 1% in GDP increases FDI inflows as a share of GDP by 17%. This confirms that FDI in developing markets is indeed market-seeking and flows to high growth host markets. It is worth mentioning that when we used per capita GDP as a proxy for market size, it did not have a significant effect on FDI. The same result occurs when absolute GDP in USD is used as a proxy for market size.

Household final consumption also has a positive role in attracting FDI, augmenting the finding that investors seek high purchasing power in their decision to invest and open new markets for their products, especially in developing countries where population growth is high and there is always a gap between supply and demand for consumer products.

Another important explanatory variable among the economic environment factors is natural resources rent as a % of GDP. Natural resources has a positive significant effect on attracting FDI in our model with a coefficient of 0.186, suggesting a substantial increase in FDI for an increase in natural resources rents. This suggests that resource-seeking FDI to take advantage of unutilized resources is very evident in countries in our model, which we found common in the review of the literature on developing countries as well. This type of FDI's main focus would be either exploiting the natural resources in host country or

exporting it as raw material to home country for consumption or production input of an otherwise scarce resource.

Closely related to natural resources and market size, is trade openness, measured by exports of goods and services as a share of GDP, one of the most significant explanatory variables in our model, in line with the literature. FDI is attracted to countries that adopt more trade liberalization policies and encourage exports and imports, which would serve market-seeking FDI that operates in a low-cost host country and wants to export to nearby markets to take advantage of proximity and access to large markets. Furthermore, the degree of trade openness is likely to affect the international capital flows, as more liberalized countries signal to investors that they can easily repatriate their capital and profits easily without any restrictions, unlike countries with strong protection measures that restrict trade. It can also be argued that FDI and trade relation is bi-directional, where countries with higher FDI tend to have higher trade volumes, thus attracting more FDI that aims to benefit from exporting to nearby markets.

Furthermore, services as a % of GDP has a strong positive effect on FDI, which is in line with the substantial increase in investment in services sectors over the past decade witnessed in developing countries. This is also consistent with other studies that show that the boost in the services sector came on the expense of the manufacturing sector in most countries and caused the structural shift of FDI from the manufacturing sector to the services sector.

The insignificance of labor, inflation and exchange rate variables in our model are striking, though they have the expected signs. Surprisingly, the labor

force participation rate should be an important indicator on the supply of labor in the host markets. This may be due to the fact that participation does not account for quality of labor, which can be abundant but unskilled and require time and cost to train and educate.

The lag of inflation and the change in exchange rate, accounting for macroeconomic stability, were also not significant. This can be explained by the fact that high economic growth is usually associated with higher inflation as well as currency fluctuations and is a common factor in most developing countries, and thus is not a main factor in the decision making of these investors.

As for investment policy factors, mobile cellular subscriptions rate, a proxy for infrastructure development of the country, was the only significant explanatory variable among the group with a positive coefficient of 0.018. This confirms that infrastructure development plays an important role in FDI decisions by investors as it reduce the additional costs associated with poor infrastructure regions and enhances productivity, which would serve to attract sophisticated investments that need a solid infrastructure and technological base to invest.

As expected, tax rates and tariff rates were insignificant in the model, showing that FDI is not attracted by tax or tariff incentives in developing countries if there are favorable factors like market size and openness to trade for example, which is consistent with previous conclusions from the literature. Tax rate had the expected negative sign, whereas tariff rate had a positive sign, suggesting that tariff-jumping may be more dominant in developing countries in our model.

Credit to the private sector does not also impact FDI in our model, which might be due to the fact that foreign investors have access to credit from home country and do not rely much on domestic credit from local banks, which comes at higher interest rates most of the time.

The second surprise in our study is that corruption did not have a significant effect on FDI inflows. However, this is in line with several studies in the literature and shows that foreign investors might tolerate higher corruption in developing countries if the macroeconomic environment of the country is attractive enough.

Finally, the first lag of the dependent variable, FDI as a share of GDP is very significant and has a strong effect on current FDI. This exhibits the nature of FDI which are consistent over time and tend to be long term investments, unlike portfolio flows for example, and countries with high FDI tend to attract more FDI and vice versa, as it signals to foreign investors that conditions are favorable. Furthermore, FDI has an agglomeration effect for investments in same industries are usually located closely to benefit from spillovers and externalities as well as benefit from know-how.

IV.B. Robustness Check

We estimated a second alternative model, Model 2, with different variables for corruption, labor, inflation and exchange rate, to test the robustness of the results of our baseline model. For the corruption, we use the Corruption Perception Index (CPI) published by Transparency International, instead of the ICRG Corruption index utilized in the baseline model. For the labor indicator, we use population growth rate to account for abundance of labor instead of labor force participation, which was not significant in the first model. We also switched the annual inflation rate with the GDP deflator and the change in exchange rate with the level of the official exchange rate of the local currency versus the USD. The comparison of the two models is shown in table 5 below.

The results of Model 2 show that the alternate variables for corruption, labor, inflation and exchange rate are all still statistically insignificant. Furthermore, the same variables from Model 1 remain the most important determinants of FDI inflows, with the exception of services as a % of GDP which has become insignificant, which confirms the robustness of the results of our baseline model.

Table 6: Baseline Panel Data Model vs. Alternate Model

Variable	Model 1	Variable	Model 2
C	-18.170***	C	-66.532
	(0.032)		(0.480)
FDI/GDP*100 (-1)	0.357***	FDI/GDP*100 (-1)	0.340***
	(0.000)		(0.000)
Corporate Tax Rate	-0.021	Corporate Tax Rate	-0.017
	(0.668)		(0.725)
Tariff Rate	0.058	Tariff Rate	0.043
	(0.238)		(0.372)
Mobile Cellular Sub	0.018*	Mobile Cellular Sub	0.019*
	(0.069)		(0.051)
Credit to Private Sector/GDP*100	0.017	Credit to Private Sector/GDP*100	0.019
	(0.160)		(0.145)
ICRG Corruption	-0.223	Corruption Perception Index	-0.012
	(0.532)		(0.248)
GDP Growth	0.171***	GDP Growth	0.165***
	(0.004)		(0.005)
HH Cons Expenditure/GDP*100	0.125*	HH Cons Expenditure/GDP*100	0.135**
	(0.055)		(0.032)
Exports of Goods and Services/GDP*100	0.057***	Exports of Goods and Services/GDP*100	0.060***
	(0.001)		(0.000)
Services/GDP*100	0.142*	Services/GDP*100	0.109
	(0.074)		(0.156)
Natural Resources Rents	0.186**	Natural Resources Rents	0.176**
	(0.015)		(0.023)
Labor Force Participation	0.010	Population Growth	2.801
	(0.891)		(0.595)
Inflation (-1)	-0.017	GDP Deflator (-1)	-0.020
	(0.379)		(0.215)
Log Exchange Rate	-0.205	Official Exchange Rate	0.000
	(0.704)		(0.572)
Adjusted R-squared	0.848	Adjusted R-squared	0.849
F-statistic	36.727	F-statistic	37.026
Prob (F-statistic)	0.000	Prob (F-statistic)	0.000
Periods included	27	Periods included	27
Cross-sections included	20	Cross-sections included	20
Total panel observations	379	Total panel observations	379
Durbin-Watson Statistic	2.013	Durbin-Watson Statistic	1.999
Akaike info criterion	4.981	Akaike info criterion	4.974

*P-values in parentheses, *** p<0.01, ** p<0.05, * p<0.1.*

From the above results, we can conclude that FDI is mainly attracted to large host markets with high growth potential and good infrastructure. Also it is clear that FDI favors open economies through which it can easily import and export its products to nearby markets and that the services sector and natural resources are usually the main targets of FDI in developing countries.

It is also obvious from our model that investment incentives weigh the potential of their investment in a market with the costs, including taxes, tariffs and higher corruption prevalence, and when the risk-adjusted returns are high enough, they accept these risks.

V. Conclusion

The purpose of this paper is to identify the principal determinants of foreign direct investment on a cross country basis through a panel data model with fixed effects. Using a large sample of the top 20-FDI attracting developing countries, we find that macroeconomic variables in the host country, including GDP growth, trade openness, availability of natural resources, private consumption and the size of services sector are most significant in explaining foreign direct investment flows, while variables such as tax rates, tariff rates and corruption prevalence are not at all significant. These findings confirm that foreign investors in developing markets primarily seek large markets with high growth and open trade as well as good infrastructure, and are not attracted by investment incentives alone.

As a policy recommendation to other developing countries, following the steps of their successful peers, governments should focus on economic environment and adopt the right macroeconomic policies that boost economic growth and liberalize its trade policies to increase trade. Furthermore, developing countries must invest in their infrastructure to create a conducive environment for foreign investment.

Appendix

Table 1: Variable Definitions

Variable	Name
FDI/GDP*100	FDI (% of GDP)
FDI/GDP*100 (-1)	Lag of FDI (% of GDP)
Corporate Tax Rate	Corporate Tax Rate (%)
Tariff Rate	Tariff rate, applied, all products (%)
Mobile Cellular Sub	Mobile cellular subscriptions (per 100 people)
Credit to Private Sector/GDP*100	Domestic credit to private sector (% of GDP)
ICRG Corruption Index	ICRG Corruption Index
GDP Growth	Real GDP growth (annual %)
HH Cons Expenditure/GDP*100	Households and NPISHs final consumption expenditure (% of GDP)
Exports of Goods and Services/GDP*100	Exports of goods and services (% of GDP)
Natural Resources Rents	Total natural resources rents (% of GDP)
Services/GDP*100	Services, value added (% of GDP)
Labor Force Participation	Labor force participation rate, total (% of total population ages 15-64)
Inflation (-1)	First lag of Inflation, consumer prices (annual %)
Log Exchange Rate	Change in average annual official exchange rate (%)

Table 2: Countries and Average FDI Rankings

Country Ranking	Average FDI Inflows 1990-2017 (USD)
China	112,422,526,099
Hong Kong SAR, China	67,754,026,404
Brazil	36,918,603,834
Singapore	28,806,506,116
Russian Federation	22,282,812,049
Mexico	20,649,140,059
India	16,023,647,326
Chile	9,664,973,905
Saudi Arabia	8,074,671,509
Turkey	7,366,321,429
Korea, Rep.	7,339,467,857
Indonesia	7,182,586,927
Argentina	7,092,097,188
Colombia	6,520,282,103
Vietnam	6,427,166,667
Malaysia	6,231,160,403
Kazakhstan*	6,012,543,700
Thailand	5,924,230,634
Israel	5,607,239,286
United Arab Emirates*	4,810,449,190
Peru	3,979,255,694
Egypt, Arab Rep.	3,374,098,214

Source: World Development Indicators, The World Bank

** Kazakhstan and United Arab Emirates were excluded from the model due to a large number of missing values*

Table 3: Descriptive Statistics of the Data

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
FDI/GDP*100 (-1)	4.951	2.900	56.351	-2.757	6.967	379
FDI/GDP*100	4.886	2.917	56.351	-2.757	6.829	379
Corporate Tax Rate	27.685	29.000	49.220	15.000	6.631	379
Tariff Rate	8.657	8.090	42.610	0.000	6.149	379
Mobile Cellular Sub	76.830	80.152	249.763	0.088	55.953	379
Credit to Private Sector/GDP*100	65.744	50.058	233.211	9.683	46.322	379
ICRG Corruption	2.693	2.500	4.500	1.000	0.872	379
GDP Growth	4.242	4.572	15.240	-13.127	3.656	379
HH Cons Expenditure/GDP*100	58.344	61.412	88.124	26.026	11.224	379
Exports of Goods and Services/GDP*100	50.275	30.250	231.195	6.598	52.474	379
Services/GDP*100	54.156	53.359	91.922	30.926	11.239	379
Natural Resources Rents	6.474	3.867	55.312	0.000	9.067	379
Labor Force Participation	63.048	62.297	83.278	29.600	8.910	379
Inflation (-1)	7.635	4.296	105.215	-15.808	13.548	379
Log Exchange Rate	3.269	2.049	10.031	-4.511	3.030	379

Table 4: Correlation Matrix

	FDI/GDP*100 (-1)	FDI/GDP*100	Corporate Tax Rate	Tariff Rate	Mobile Cellular Sub	Credit to Private Sector/ GDP*100	ICRG Corruption	GDP Growth	HH Cons Expenditure/GDP*100	Exports of Goods and Services /GDP*100	Services /GDP*100	Natural Resources Rents	Labor Force Participation	Inflation (-1)	Log Exchange Rate
FDI/GDP*100 (-1)	1.000														
FDI/GDP*100	0.889	1.000													
Corporate Tax Rate	-0.505	-0.508	1.000												
Tariff Rate	-0.435	-0.430	0.595	1.000											
Mobile Cellular Sub	0.463	0.478	-0.556	-0.560	1.000										
Credit to Private Sector/GDP*100	0.573	0.576	-0.525	-0.347	0.481	1.000									
ICRG Corruption	0.565	0.572	-0.409	-0.403	0.296	0.436	1.000								
GDP Growth	0.060	-0.015	0.001	-0.039	-0.079	0.062	0.025	1.000							
HH Cons Expenditure/GDP*100	-0.135	-0.130	0.322	0.321	-0.258	-0.408	-0.181	-0.164	1.000						
Exports of Goods and Services/GDP*100	0.790	0.777	-0.522	-0.497	0.409	0.676	0.537	0.067	-0.424	1.000					
Services/GDP*100	0.662	0.657	-0.291	-0.362	0.392	0.410	0.511	-0.209	0.085	0.507	1.000				
Natural Resources Rents	-0.156	-0.162	-0.182	-0.054	0.078	-0.192	-0.196	0.033	-0.392	-0.108	-0.478	1.000			
Labor Force Participation	0.067	0.077	-0.025	-0.023	0.097	0.280	-0.051	0.112	-0.188	0.158	-0.102	-0.155	1.000		
Inflation (-1)	-0.193	-0.185	0.312	0.048	-0.255	-0.324	-0.110	0.005	0.284	-0.217	-0.109	-0.111	-0.229	1.000	
Log Exchange Rate	-0.139	-0.136	-0.092	0.061	-0.027	0.069	-0.075	0.022	0.182	-0.144	-0.350	0.034	0.394	-0.175	1.000

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